TITLE OF INVENTION

DIRECTLY POLYMERIZED LOW MOLECULAR WEIGHT GRANULAR POLYTETRAFLUOROETHYLENE

ABSTRACT OF THE DISCLOSURE

A process for producing low molecular weight, granular polytetrafluoroethylene or modified polytetrafluoroethylene by suspension polymerization of pressurized tetrafluoroethylene in an agitated reaction vessel. The polymerization is conducted in aqueous medium in the presence of a free radical initiator, and a telogen. The reaction vessel is agitated during polymerization sufficiently to coagulate the polytetrafluoroethylene or modified polytetrafluoroethylene. Low molecular weight granular polytetrafluoroethylene or modified polytetrafluoroethylene having a melt viscosity of less than about 1 x 10^6 Pa·S powder is isolated directly from the reaction vessel. The low molecular weight polytetrafluoroethylene or modified polytetrafluoroethylene powder in accordance with the invention has a melt viscosity of less than about 1 x 10^6 Pa·S, a specific surface area of less than about 8 m^2/g, an extractable fluoride level of about 3 ppm or less by weight, and a narrow molecular weight distribution as indicated by a polydispersity index of about 5 or less. The particles of low molecular powder have a weight average particle size of about 2 to about 40 micrometers and the powder is substantially free of particles having a particle size of less than about 1 micrometer. The low molecular weight material so produced suitable for use as additives to other materials such as inks, coatings, greases, lubricants, and plastics.